

1643

Partner

CRF Err

Corrected by the STIC Systems Branch

Serial Number: 09545, 199C

CRF Processing Date:

Edited by:

Verified by:

(STIC sta)

 Changed a file from non-ASCII to ASCII Changed the margins in cases where the sequence text was "wrapped" down to the next line. Edited a format error in the Current Application Data section, specifically: Edited the Current Application Data section with the actual current number. The number inputted by the applicant was  the prior application data; or  other \_\_\_\_\_ Added the mandatory heading and subheadings for "Current Application Data".RECEIVED  
JUL 24 2001 Edited the "Number of Sequences" field. The applicant spelled out a number instead of using a number. Changed the spelling of a mandatory field (the headings or subheadings), specifically: Corrected the SEQ ID NO when obviously incorrect. The sequence numbers that were edited were: Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID.NO's edited: Corrected subheading placement. All responses must be on the same line as each subheading. If the applicant placed a response below the subheading, this was moved to its appropriate place. Inserted colons after headings/subheadings. Headings edited included: Deleted extra, invalid, headings used by an applicant, specifically: Deleted:  non-ASCII "garbage" at the beginning/end of files;  secretary initials/filename at end of file;  page numbers throughout text;  other invalid text, such as \_\_\_\_\_ Inserted mandatory headings, specifically: Corrected an obvious error in the response, specifically: Edited identifiers where upper case is used but lower case is required, or vice versa. Corrected an error in the Number of Sequences field, specifically: A "Hard Page Break" code was inserted by the applicant. All occurrences had to be deleted. Deleted ending stop codon in amino acid sequences and adjusted the "(A)Length:" field accordingly (error due to a PatentIn bug). Sequences corrected:

Other: Corrected misaligned amino acid number in sequence #16.

\*Examiner: The above corrections must be communicated to the applicant in the first Office Action. DO NOT send a copy of this form.

3/1/95

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JUL 24 2001

1643

TECH CENTER 1600/2900

**RAW SEQUENCE LISTING**  
**PATENT APPLICATION: US/09/545,199C**

DATE: 07/19/2001  
TIME: 10:36:34

Input Set : A:\Cpg.pto  
Output Set: N:\CRF3\07192001\I545199C.raw

RAW SEQUENCE LISTING  
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Input Set : A:\Cpg.pto  
Output Set: N:\CRF3\07192001\I545199C.raw

73	Val	Pro	Ser	Lys	Met	Gln	Cys	Phe	Val	Glu	Ile	Met	Val	Asp	Trp	Ile			
74	60				65					70									
76	gat	ggg	atc	gta	aaa	gaa	aat	ttc	cat	ggt	cct	cgt	cat	gct	gtt	gga	473		
77	Asp	Gly	Ile	Val	Lys	Glu	Asn	Phe	His	Gly	Pro	Arg	His	Ala	Val	Gly			
78	75				80					85									
80	cca	tta	gca	tta	act	att	ttc	tgc	tgg	gta	ttc	att	atg	aat	gct	atc	521		
81	Pro	Leu	Ala	Leu	Thr	Ile	Phe	Cys	Trp	Val	Phe	Ile	Met	Asn	Ala	Ile			
82	90				95					100									
84	gat	ttg	atc	cca	gta	gat	ttc	cta	cct	caa	tta	gcc	cat	tta	ttt	ggt	569		
85	Asp	Leu	Ile	Pro	Val	Asp	Phe	Leu	Pro	Gln	Leu	Ala	His	Leu	Phe	Gly			
86	105				110					115						120			
88	att	gaa	tac	tta	aga	gct	gtt	cca	aca	gca	gat	atc	agt	gga	aca	tta	617		
89	Ile	Glu	Tyr	Leu	Arg	Ala	Val	Pro	Thr	Ala	Asp	Ile	Ser	Gly	Thr	Leu			
90		125				130					135								
92	ggc	tta	tca	att	ggt	gtc	ttc	ttc	tta	att	att	ttc	tat	aca	atc	aaa	665		
93	Gly	Leu	Ser	Ile	Gly	Val	Phe	Phe	Leu	Ile	Ile	Phe	Tyr	Thr	Ile	Lys			
94		140				145					150								
96	tca	aaa	ggt	atg	agt	ggc	ttt	gtt	aaa	gaa	tat	acg	ctt	cat	cct	ttt	713		
97	Ser	Lys	Gly	Met	Ser	Gly	Phe	Val	Lys	Glu	Tyr	Thr	Leu	His	Pro	Phe			
98		155				160					165								
100	aat	cat	cct	ttg	tta	att	ccg	gtt	aac	tta	gcg	ctt	gaa	tca	gtc	aca	761		
101	Asn	His	Pro	Leu	Leu	Ile	Pro	Val	Asn	Leu	Ala	Leu	Glu	Ser	Val	Thr			
102		170				175					180								
104	tta	tta	gca	aaa	cct	gtt	tct	ttg	gcg	ttc	cgt	ctt	ttc	ggg	aat	atg	809		
105	Leu	Leu	Ala	Lys	Pro	Val	Ser	Leu	Ala	Phe	Arg	Leu	Phe	Gly	Asn	Met			
106	185				190					195						200			
108	tat	gca	ggt	gaa	ctt	atc	ttt	att	ctt	att	gca	gtg	atg	tac	atg	gca	857		
109	Tyr	Ala	Gly	Glu	Leu	Ile	Phe	Ile	Leu	Ile	Ala	Val	Met	Tyr	Met	Ala			
110		205				210					215								
112	aat	aat	ttt	gca	ctt	aat	tca	atg	ggt	att	ttc	atg	cat	ttg	gct	tgg	905		
113	Asn	Asn	Phe	Ala	Leu	Asn	Ser	Met	Gly	Ile	Phe	Met	His	Leu	Ala	Trp			
114		220				225					230								
117	gct	att	ttc	cat	att	ctt	gtg	att	acc	tta	caa	gca	ttt	att	ttt	atg	953		
118	Ala	Ile	Phe	His	Ile	Leu	Val	Ile	Thr	Leu	Gln	Ala	Phe	Ile	Phe	Met			
119		235				240					245								
121	atg	ctt	aca	gtg	gtt	tat	ttg	agt	atg	ggt	tat	aac	aaa	gca	gaa	cac	1001		
122	Met	Leu	Thr	Val	Val	Tyr	Leu	Ser	Met	Gly	Tyr	Asn	Lys	Ala	Glu	His			
123		250				255					260								
125	taat	ttt	taa	acaaa	ac	cagac	ctt	gg	gtc	taa	attt	caat	ttat	g	agaac	atta	1061		
W-->	127	tgga	acact	g	taat	tact	ac	aaca	atc	tc	gcat	ctg	naa	tt	ttt	ctt	gc	t	1112
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135	<400>	SEQUENCE:	2																
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137		1			5					10				15					
139	Phe	Leu	Lys	Thr	Gly	Asp	Ser	Phe	Trp	His	Val	His	Leu	Asp	Thr	Leu			
140					20					25				30					

**RAW SEQUENCE LISTING**  
**PATENT APPLICATION: US/09/545,199C**

**DATE: 07/19/2001**  
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**Input Set : A:\Cpg.pto**  
**Output Set: N:\CRF3\07192001\I545199C.raw**

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 143       35                          40                          45  
 145 Val Ala Lys Lys Ala Thr Pro Gly Val Pro Ser Lys Met Gln Cys Phe  
 146       50                          55                          60  
 148 Val Glu Ile Met Val Asp Trp Ile Asp Gly Ile Val Lys Glu Asn Phe  
 149       65                          70                          75                          80  
 151 His Gly Pro Arg His Ala Val Gly Pro Leu Ala Leu Thr Ile Phe Cys  
 152       85                          90                          95  
 154 Trp Val Phe Ile Met Asn Ala Ile Asp Leu Ile Pro Val Asp Phe Leu  
 155       100                          105                          110  
 157 Pro Gln Leu Ala His Leu Phe Gly Ile Glu Tyr Leu Arg Ala Val Pro  
 158       115                          120                          125  
 160 Thr Ala Asp Ile Ser Gly Thr Leu Gly Leu Ser Ile Gly Val Phe Phe  
 161       130                          135                          140  
 163 Leu Ile Ile Phe Tyr Thr Ile Lys Ser Lys Gly Met Ser Gly Phe Val  
 164       145                          150                          155                          160  
 166 Lys Glu Tyr Thr Leu His Pro Phe Asn His Pro Leu Leu Ile Pro Val  
 167       165                          170                          175  
 169 Asn Leu Ala Leu Glu Ser Val Thr Leu Leu Ala Lys Pro Val Ser Leu  
 170       180                          185                          190  
 172 Ala Phe Arg Leu Phe Gly Asn Met Tyr Ala Gly Glu Leu Ile Phe Ile  
 173       195                          200                          205  
 175 Leu Ile Ala Val Met Tyr Met Ala Asn Asn Phe Ala Leu Asn Ser Met  
 176       210                          215                          220  
 178 Gly Ile Phe Met His Leu Ala Trp Ala Ile Phe His Ile Leu Val Ile  
 179       225                          230                          235                          240  
 181 Thr Leu Gln Ala Phe Ile Phe Met Met Leu Thr Val Val Tyr Leu Ser  
 182       245                          250                          255  
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 185       260  
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 189 <211> LENGTH: 1972  
 190 <212> TYPE: DNA  
 191 <213> ORGANISM: Pasteurella multocida  
 193 <220> FEATURE:  
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 195 <222> LOCATION: (364)..(1230)  
 197 <220> FEATURE:  
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 200 <400> SEQUENCE: 3  
 201 agcgggccat ttggctcagt tcggcttcgg attcttatga tgcacacgta agcaatttac 60  
 203 acatggtaaa aaagtaactg aattattgaa acaaaaaccaa tactctccgt tatctgttagc 120  
 205 acaacaagca ttagtgttat ttgcagtaga gtttggttac tttagaagaag tggacttaga 180  
 207 tcgtatttgt tcatttgaat cagcacttt agagtatgct aaccataact atgctgattt 240  
 209 tatgcgtgag ttaacccaat ctggcaatta caatgatgaa attaaagagt cattaaaagg 300  
 211 cattttggat agcttcaaag caaacagtc gtggtaagtt aacactttaa atggagagac 360  
 213 aaa atg gca ggt gct aaa gag ata aga acc aaa atc gcg agt gta aaa 408  
 214       Met Ala Gly Ala Lys Glu Ile Arg Thr Lys Ile Ala Ser Val Lys  
 215       1                          5                          10                          15

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**Input Set : A:\Cpg.pto**  
**Output Set: N:\CRF3\07192001\I545199C.raw**

217	agt aca caa aaa att act aaa gcg atg gaa atg gtt gct gcc tcg aaa	456
218	Ser Thr Gln Lys Ile Thr Lys Ala Met Glu Met Val Ala Ala Ser Lys	
219	20 25 30	
221	atg cgt aaa acg caa gaa cgc atg tct tct tca cgc cct tat tca gaa	504
222	Met Arg Lys Thr Gln Glu Arg Met Ser Ser Ser Arg Pro Tyr Ser Glu	
223	35 40 45	
225	aca ata cgt aac gtg att agc cac tcc aaa gca acg att ggt tac	552
226	Thr Ile Arg Asn Val Ile Ser His Val Ser Lys Ala Thr Ile Gly Tyr	
227	50 55 60	
229	aag cat cca ttt tta gtg gat cgc gaa gta aaa aaa gtg ggc atg att	600
230	Lys His Pro Phe Leu Val Asp Arg Glu Val Lys Lys Val Gly Met Ile	
231	65 70 75	
233	gtt gtg tcc aca gat cgt ggt ctt tgt ggt ggc tta aac gtg aac ttg	648
234	Val Val Ser Thr Asp Arg Gly Leu Cys Gly Gly Leu Asn Val Asn Leu	
235	80 85 90 95	
237	ttt aaa act gta tta aat gaa atg aaa gaa tgg aaa gaa aaa gat gtt	696
238	Phe Lys Thr Val Leu Asn Glu Met Lys Glu Trp Lys Glu Lys Asp Val	
239	100 105 110	
241	tcc gtt caa ttg agt tta atc ggt tct aaa tct atc aac ttt ttc caa	744
242	Ser Val Gln Leu Ser Leu Ile Gly Ser Lys Ser Ile Asn Phe Phe Gln	
243	115 120 125	
245	tct ttg gga att aaa att tta acc caa gat tca ggt att ggt gat act	792
246	Ser Leu Gly Ile Lys Ile Leu Thr Gln Asp Ser Gly Ile Gly Asp Thr	
247	130 135 140	
249	ccc tct gtt gag cag tta att ggt tca gtc aat tct atg att gat gct	840
250	Pro Ser Val Glu Gln Leu Ile Gly Ser Val Asn Ser Met Ile Asp Ala	
251	145 150 155	
253	tat aaa aaa ggg gaa gta gat gtt gtg tat tta gtt tat aac aaa ttt	888
254	Tyr Lys Lys Gly Glu Val Asp Val Val Tyr Leu Val Tyr Asn Lys Phe	
255	160 165 170 175	
257	att aac acg atg tcg caa aag cca gta ttg gaa aaa tta att cca tta	936
258	Ile Asn Thr Met Ser Gln Lys Pro Val Leu Glu Lys Leu Ile Pro Leu	
259	180 185 190	
261	cca gaa tta gat aat gat gaa tta ggc gaa aga aaa caa gtt tgg gat	984
262	Pro Glu Leu Asp Asn Asp Glu Leu Gly Glu Arg Lys Gln Val Trp Asp	
263	195 200 205	
265	tat att tac gaa cct gat gcg aaa gta tta tta gat aat tta ttg gtt	1032
266	Tyr Ile Tyr Glu Pro Asp Ala Lys Val Leu Leu Asp Asn Leu Leu Val	
267	210 215 220	
269	cgt tat tta gaa tct cag gtt tat caa gca gca gtt gaa aac ctt gct	1080
270	Arg Tyr Leu Glu Ser Gln Val Tyr Gln Ala Ala Val Glu Asn Leu Ala	
271	225 230 235	
273	tct gag caa gcc gct cga atg gtc gcc atg aaa gca gca aca gat aac	1128
274	Ser Glu Gln Ala Ala Arg Met Val Ala Met Lys Ala Ala Thr Asp Asn	
275	240 245 250 255	
277	gca ggt aac tta att aat gag tta cag tta gtc tat aac aaa gct cgt	1176
278	Ala Gly Asn Leu Ile Asn Glu Leu Gln Leu Val Tyr Asn Lys Ala Arg	
279	260 265 270	
281	caa gca agt att aca aat gaa tta aat gaa att gtt gcc ggt gca gca	1224

RAW SEQUENCE LISTING  
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282 Gln Ala Ser Ile Thr Asn Glu Leu Asn Glu Ile Val Ala Gly Ala Ala  
283       275                   280                   285  
285 gca att taacaaatag aggatcggtta atggcaactg gaaaaattgt acaaatcatc   1280  
286 Ala Ile  
288 ggtgcgggta ttgacgttga attcccacaa gatgcagttac caaaaagtata tgatgcctta 1340  
290 aatgttgaaa cagggttagt acttgaagtt caacaacaat taggtggtgg ttagttcgc 1400  
292 tggatcgcaa tggatcgatc tggatggatta aaacgcgggt taagcgtaac aaatacgaat 1460  
294 aaccacattt ctgttccagt gggAACGAAA acattgggtc gtatcatgaa cgtattgggt 1520  
296 gaaccaatcg atgagcaagg tggaaatcggt gcagaagaga attggtctat tcaccgtgcg 1580  
298 ccaccaatcg atgaaagaaca atctaacagt actgaacttt tagaaacggg aattaaagtt 1640  
300 atcgacttag tttgtccgtt tgcgaaaggg gttaaagttag gtttattcgg tggcggggt 1700  
302 gtcggtaaaa ccgtcaatat gatggaaatta atccgtaaaca tcgcaattga gcactcaggt 1760  
304 tactctgtct ttgcgggggt aggtgagcgt acgcgtgaag gtaacgactt ctatcatgag 1820  
306 atgaaagact ctaacgttatt agataaagtg tctttgttt atggtaaat gaacgagcca 1880  
308 ccaggttaacc gtttacgtgt ggcttaacta ggcttaacta tggcggaaaa attccgtat 1940  
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313 <210> SEQ ID NO: 4  
314 <211> LENGTH: 289  
315 <212> TYPE: PRT  
316 <213> ORGANISM: Pasteurella multocida  
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322 Thr Gln Lys Ile Thr Lys Ala Met Glu Met Val Ala Ala Ser Lys Met  
323   20              25                   30  
325 Arg Lys Thr Gln Glu Arg Met Ser Ser Ser Arg Pro Tyr Ser Glu Thr  
326   35              40                   45  
328 Ile Arg Asn Val Ile Ser His Val Ser Lys Ala Thr Ile Gly Tyr Lys  
329   50              55                   60  
331 His Pro Phe Leu Val Asp Arg Glu Val Lys Lys Val Gly Met Ile Val  
332   65              70                   75                   80  
334 Val Ser Thr Asp Arg Gly Leu Cys Gly Leu Asn Val Asn Leu Phe  
335   85              90                   95  
337 Lys Thr Val Leu Asn Glu Met Lys Glu Trp Lys Glu Lys Asp Val Ser  
338   100             105                   110  
340 Val Gln Leu Ser Leu Ile Gly Ser Lys Ser Ile Asn Phe Phe Gln Ser  
341   115             120                   125  
343 Leu Gly Ile Lys Ile Leu Thr Gln Asp Ser Gly Ile Gly Asp Thr Pro  
344   130             135                   140  
346 Ser Val Glu Gln Leu Ile Gly Ser Val Asn Ser Met Ile Asp Ala Tyr  
347   145             150                   155                   160  
349 Lys Lys Gly Glu Val Asp Val Val Tyr Leu Val Tyr Asn Lys Phe Ile  
350   165             170                   175  
352 Asn Thr Met Ser Gln Lys Pro Val Leu Glu Lys Leu Ile Pro Leu Pro  
353   180             185                   190  
355 Glu Leu Asp Asn Asp Glu Leu Gly Glu Arg Lys Gln Val Trp Asp Tyr  
356   195             200                   205  
358 Ile Tyr Glu Pro Asp Ala Lys Val Leu Leu Asp Asn Leu Leu Val Arg  
359   210             215                   220

**Please Note:**

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

VERIFICATION SUMMARY  
PATENT APPLICATION: US/09/545,199C

DATE: 07/19/2001  
TIME: 10:36:35

Input Set : A:\Cpg.pto  
Output Set: N:\CRF3\07192001\I545199C.raw

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L:3840 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27  
L:3843 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27  
L:3844 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27  
L:3847 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27  
L:3848 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27  
L:3979 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28  
L:3982 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28  
L:3985 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28  
L:5414 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35  
L:5415 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35  
L:5426 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35  
L:5427 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35  
L:5442 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35  
L:5450 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35  
L:5524 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36  
L:5527 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36  
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L:5627 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37  
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L:5661 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37  
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L:5689 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37  
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L:9357 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:72  
L:11241 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:90  
L:11243 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:90  
L:11976 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:102  
L:11977 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:102  
L:12304 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:103